

NMCP COVID-19 Literature Report #45: Friday, 23 October 2020

Prepared By: Tracy Shields, MSIS, AHIP <tracy.c.shields2.civ@mail.mil>

Reference Medical Librarian; Naval Medical Center Portsmouth, Library Services

Purpose: These weekly reports, published on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers and leadership. All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily. Please feel free to reach out with questions, suggestions for future topics, or any other feedback.

Statistics

Global today: 41,820,333 confirmed cases and 1,138,802 deaths in 189 countries/regions

1 week ago: 39,015,163 confirmed cases and 1,099,727 deaths in 189 countries/regions

2 weeks ago: 36,593,879 confirmed cases and 1,063,084 deaths in 188 countries/regions

United States*

top 5 states by cases (Virginia is ranked 16th)

	TOTAL US	CA	TX	FL	NY	IL
Confirmed Cases	8,413,274	894,034	871,485	768,091	490,134	363,740
Tests	128,964,596	17,358,770	7,532,717	5,821,939	13,332,845	7,034,669
Deaths	223,061	17,268	17,659	16,267	33,396	9,810

*see census.gov for current US Population data; NA: not all data available

[JHU CSSE](https://covid19.jhu.edu/) as of 1000 EDT 23 October 2020

<i>Virginia</i>	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	171,284	4,823	2,079	3,119	5,282	2,793	2,277	7,722
Hospitalized	12,140	472	87	115	405	301	134	428
Deaths	3,539	78	32	50	85	69	77	103

[VA DOH](https://vadoh.com/) as of 1000 EDT 23 October 2020

Updates and Special Reports

The CDC has expanded its definition of 'close contact' to include cumulative exposure over a 24-hour period. Specifically:

"Someone who was within 6 feet of an infected person for a cumulative total of 15 minutes or more over a 24-hour period* starting from 2 days before illness onset (or, for asymptomatic patients, 2 days prior to test specimen collection) until the time the patient is isolated.

* Individual exposures added together over a 24-hour period (e.g., three 5-minute exposures for a total of 15 minutes). Data are limited, making it difficult to precisely define "close contact;" however, 15 cumulative minutes of exposure at a distance of 6 feet or less can be used as an operational definition for contact investigation. Factors to consider when defining close contact include proximity (closer distance likely increases exposure risk), the duration of exposure (longer exposure time likely increases exposure risk), whether the infected individual has symptoms (the period around onset of symptoms is associated with the highest levels of viral shedding), if the infected person was likely to generate respiratory aerosols (e.g., was coughing, singing, shouting), and other environmental factors (crowding, adequacy of ventilation, whether exposure was indoors or outdoors). Because the general public has not received training on proper selection and use of respiratory PPE, such as an N95, the determination of close contact should generally be made irrespective of whether the contact was wearing respiratory PPE. At this time, differential determination of close contact for those using fabric face coverings is not recommended." ([CDC](#))

This change is in part because of a study in a Vermont correctional facility where it appears a correctional officer contracted the coronavirus during "multiple brief encounters" with six incarcerated people who had COVID-19 during the wait for test results ([MMWR](#); see Selected Literature: Peer-Reviewed Journals for 21 October 2020, below, for more).

CIDRAP: [Viewpoint Part 6: Ensuring a Resilient US Prescription Drug Supply \[pdf\]](#)

"In this periodic series of reports we will address timely issues with straight talk and clarity. And the steps we recommend will be based on our current reality and the best available data. Our goal is to help planners envision some of the situations that might present themselves later this year or next year so that they can take key steps now, while there's still time.

CIDRAP experts note there are already growing shortages in the United States and Europe for COVID-19-related drugs.

Twenty-nine (73%) out of the 40 COVID-19 treatment drugs and 67 (43%) of the 156 critical acute drugs are in shortage status—and COVID cases are surging. Drug production is further compromised with the growing case-related manufacturing shutdowns occurring in Italy and India.

They write that there is an urgent need for new, more effective policy with robust transparency to solve the persistent drug shortage issues plaguing the US healthcare system.

The authors recommend several steps, including:

- The United States should have a national process and infrastructure for analyzing, predicting, managing and preventing shortages of critical medications.
- An in-depth map of the US drug supply chain is needed to identify where each drug product in the US market was made, including where the starting materials, active pharmaceutical ingredients, and finished drug product were produced.
- Congress should authorize and fund a national entity to build the map noted above, publish information on each drug's supply chain, acquire and analyze prescription drug expenditure data, estimate the consequences of failing to address drug shortages, and coordinate the development of related national policy.
- This national entity could be an existing agency such as the FDA, NIH, National Library of Medicine, or US Pharmacopeia Convention. Alternatively, a new federal entity may be established.
- Prescription drug profiles for each drug product should be made publicly available on a consumer-friendly website and include key information.
- An ongoing research program on the resilience of the US drug supply chain should be conducted and include the development of a sentinel system that can detect signals that may precede a supply chain disruption or drug shortage."

Previous CIDRAP reports:

1. [The future of the COVID-19 pandemic: lessons learned from pandemic influenza \[pdf\]](#) (30 April 2020)
2. [Effective COVID-19 crisis communication \[pdf\]](#) (06 May 2020)
3. [Smart testing for COVID-19 virus and antibodies \[pdf\]](#) (20 May 2020)
4. [Contact tracing for COVID-19: Assessing needs, using a tailored approach \[pdf\]](#) (02 June 2020)
5. [SARS-CoV-2 infection and COVID-19 surveillance: a national framework \[pdf\]](#) (07 July 2020)

Selected Literature: Peer-Reviewed Journals

Date given is the date published or posted online; often these papers are ahead of print.

23 October 2020

MMWR: [Association Between Social Vulnerability and a County's Risk for Becoming a COVID-19 Hotspot — United States, June 1–July 25, 2020](#)

"Communities with higher social vulnerabilities, including poverty and crowded housing units, have more adverse outcomes during and following a public health event.

Counties with greater social vulnerability were more likely to become areas with rapidly increasing COVID-19 incidence (hotspot counties), especially counties with higher percentages of racial and ethnic minority residents and people living in crowded housing conditions, and in less urban areas. Hotspot counties with higher social vulnerability had high and increasing incidence after identification.

Focused public health action is urgently needed to prevent communities that are socially vulnerable from becoming COVID-19 hotspots and address persistently high COVID-19 incidence among hotspot areas that are socially vulnerable."

22 October 2020

BMJ: [Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicentre randomised controlled trial \(PLACID Trial\)](#)

- "As of October 2020, multiple small case series, one large observational study (>35 000 patients), and three randomised trials have been published on the utility of convalescent plasma to treat coronavirus disease 2019 (covid-19)
- Although the observational studies suggested clinical benefits in recipients of convalescent plasma, the trials were stopped early and failed to ascertain any mortality benefit from convalescent plasma treatment in patients with covid-19
- In settings with limited laboratory capacity, convalescent plasma does not reduce 28 day mortality or progression to severe disease in patients admitted to hospital with moderate covid-19
- Convalescent plasma treatment was associated with earlier resolution of shortness of breath and fatigue and higher negative conversion of SARS-CoV-2 RNA on day 7 of enrolment
- As a potential treatment for patients with moderate covid-19, convalescent plasma showed limited effectiveness"

JAMA: [Scientific and Ethical Principles Underlying Recommendations From the Advisory Committee on Immunization Practices for COVID-19 Vaccination Implementation](#)

"This Viewpoint summarizes the principles guiding coronavirus disease 2019 (COVID-19) vaccine recommendations made by the Advisory Committee on Immunization Practices (ACIP), a nongovernment advisory standing committee that counsels the Centers for Disease Control and Prevention on US population vaccine use, emphasizing that any final recommendations await phase 3 safety and efficacy data from ongoing trials."

Lancet Infect Dis: [The temporal association of introducing and lifting non-pharmaceutical interventions with the time-varying reproduction number \(R\) of SARS-CoV-2: a modelling study across 131 countries](#)

"To the best of our knowledge, this study is the first to explicitly quantify the effects of both introducing and lifting individual NPIs [non-pharmaceutical interventions] on R over time. By linking a global dataset of country-level daily R values with a global dataset of country-level policies on NPIs, we modelled the change in R values (as R ratio) from day 1 to day 28 following the introduction and relaxation of eight individual NPIs among 131 countries. We found that reopening schools, lifting bans on public events, lifting bans on public gatherings of more than ten people, lifting requirements to stay at home, and lifting internal movement limits were associated with an increase in R of 11–25% on day 28 following the relaxation. However, the effects of introducing and lifting NPIs were not immediate; it took a median of 8 days (IQR 6–9) following the introduction of NPIs to observe 60% of their maximum reduction in R and even longer (17 days [14–20]) following the relaxation to observe 60% of the maximum increase in R. A similar delay in response to the introduction and relaxation of NPIs was also identified using Google mobility data. We compared four different candidates of composite NPIs that countries might consider in response to a possible resurgence of COVID-19.

We quantified the change in transmission of SARS-CoV-2, as measured by R, following the introduction and relaxation of individual NPIs, and found a delay of 1–3 weeks in observing the effects of introducing and lifting these NPIs. These findings provide additional evidence that can inform policy-maker decisions on which NPIs to introduce or lift and when to expect a notable effect following the introduction or the relaxation."

21 October 2020

Ann Intern Med: [COVID-19 Mortality Risk in Down Syndrome: Results From a Cohort Study Of 8 Million Adults](#)

"To evaluate Down syndrome as a risk factor for death from COVID-19 through a comprehensive analysis of individual-level data in a cohort study of 8.26 million adults (aged

>19 years), as part of a wider COVID-19 risk prediction project commissioned by the U.K. government....

We estimated a 4-fold increased risk for COVID-19–related hospitalization and a 10-fold increased risk for COVID-19–related death in persons with Down syndrome, a group that is currently not strategically protected. This was after adjustment for cardiovascular and pulmonary diseases and care home residence, which our results suggest explained some but not all of the increased risk. These estimated adjusted associations do not have a direct causal interpretation because some adjusted variables may lie on causal pathways, but they can inform policy and motivate further investigation."

Infect Control Hosp Epidemiol: [Environmental contamination in a COVID-19 intensive care unit \(ICU\) - what is the risk?](#)

"The risk of environmental contamination by SARS-CoV-2 in the intensive care unit (ICU) is unclear. We aimed to evaluate the extent of environmental contamination in the ICU and correlate this with patient and disease factors, including the impact of different ventilatory modalities.

Observational study where surface environmental samples collected from ICU patient rooms and common areas were tested by SARS-CoV-2 PCR, with select samples from the common area tested on cell culture. Clinical data were collected and correlated to presence of environmental contamination. Results were compared to historical data from a previous study in general wards (GW).

200 samples from 20 patient rooms, and 75 samples from common areas and the staff pantry, were tested. 14 rooms had at least one site contaminated, with an overall contamination rate of 14% (28 of 200 samples). Environmental contamination was not associated with day of illness, ventilatory mode, aerosol generating procedures, or viral load. There was lower frequency of environmental contamination in ICU compared to GW rooms. Eight samples from the common area were positive, though all were negative on cell culture.

Environmental contamination in the ICU is lower compared to the GW. Use of mechanical ventilation or high-flow nasal oxygen was not associated with greater surface contamination, supporting their use and safety from an infection control perspective. Transmission risk via environmental surfaces in the ICUs is likely to be low. Nonetheless, infection control practices should be strictly reinforced, and transmission risk via droplet or airborne spread remains."

JAMA Psychiatry: [Harnessing Collaborative Care to Meet Mental Health Demands in the Era of COVID-19](#)

Viewpoint: "The COVID-19 pandemic has highlighted the US's need for more efficient and widespread mental health service delivery, especially for patients with complex medical and

psychiatric needs. Our current mental health care system is inaccessible and siloed from the rest of medicine, rendering it poorly equipped to rise to this critical occasion. To meet the increased mental health service needs during COVID-19, health care systems nationwide must begin to quickly implement integrated mental health delivery models that are scalable, flexible, and sustainable. With more than 2 decades of evidence supporting its use across diverse populations and diagnoses, CoCM [collaborative care model] should form the backbone of our mental health care response to this pandemic and the challenges that lie beyond it."

MMWR: [COVID-19 in a Correctional Facility Employee Following Multiple Brief Exposures to Persons with COVID-19 — Vermont, July–August 2020](#)

"On August 11, 2020, a confirmed case of coronavirus disease 2019 (COVID-19) in a male correctional facility employee (correctional officer) aged 20 years was reported to the Vermont Department of Health (VDH). On July 28, the correctional officer had multiple brief encounters with six incarcerated or detained persons (IDPs) while their SARS-CoV-2 test results were pending. The six asymptomatic IDPs arrived from an out-of-state correctional facility on July 28 and were housed in a quarantine unit. In accordance with Vermont Department of Corrections (VDOC) policy for state prisons, nasopharyngeal swabs were collected from the six IDPs on their arrival date and tested for SARS-CoV-2, the virus that causes COVID-19, at the Vermont Department of Health Laboratory, using real-time reverse transcription–polymerase chain reaction (RT-PCR). On July 29, all six IDPs received positive test results. VDH and VDOC conducted a contact tracing investigation† and used video surveillance footage to determine that the correctional officer did not meet VDH’s definition of close contact (i.e., being within 6 feet of infectious persons for ≥15 consecutive minutes); therefore, he continued to work. At the end of his shift on August 4, he experienced loss of smell and taste, myalgia, runny nose, cough, shortness of breath, headache, loss of appetite, and gastrointestinal symptoms; beginning August 5, he stayed home from work. An August 5 nasopharyngeal specimen tested for SARS-CoV-2 by real-time RT-PCR at a commercial laboratory was reported as positive on August 11; the correctional officer identified two contacts outside of work, neither of whom developed COVID-19. On July 28, seven days preceding his illness onset, the correctional officer had multiple brief exposures to six IDPs who later tested positive for SARS-CoV-2; available data suggests that at least one of the asymptomatic IDPs transmitted SARS-CoV-2 during these brief encounters....

Data are limited to precisely define “close contact”; however, 15 minutes of close exposure is used as an operational definition for contact tracing investigations in many settings. Additional factors to consider when defining close contact include proximity, the duration of exposure, whether the infected person has symptoms, whether the infected person was likely to generate respiratory aerosols, and environmental factors such as adequacy of ventilation and crowding."

NEJM: [Efficacy of Tocilizumab in Patients Hospitalized with Covid-19](#)

"We performed a randomized, double-blind, placebo-controlled trial involving patients with confirmed severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, hyperinflammatory states, and at least two of the following signs: fever (body temperature >38°C), pulmonary infiltrates, or the need for supplemental oxygen in order to maintain an oxygen saturation greater than 92%. Patients were randomly assigned in a 2:1 ratio to receive standard care plus a single dose of either tocilizumab (8 mg per kilogram of body weight) or placebo. The primary outcome was intubation or death, assessed in a time-to-event analysis. The secondary efficacy outcomes were clinical worsening and discontinuation of supplemental oxygen among patients who had been receiving it at baseline, both assessed in time-to-event analyses.

We enrolled 243 patients; 141 (58%) were men, and 102 (42%) were women. The median age was 59.8 years (range, 21.7 to 85.4), and 45% of the patients were Hispanic or Latino. The hazard ratio for intubation or death in the tocilizumab group as compared with the placebo group was 0.83 (95% confidence interval [CI], 0.38 to 1.81; P=0.64), and the hazard ratio for disease worsening was 1.11 (95% CI, 0.59 to 2.10; P=0.73). At 14 days, 18.0% of the patients in the tocilizumab group and 14.9% of the patients in the placebo group had had worsening of disease. The median time to discontinuation of supplemental oxygen was 5.0 days (95% CI, 3.8 to 7.6) in the tocilizumab group and 4.9 days (95% CI, 3.8 to 7.8) in the placebo group (P=0.69). At 14 days, 24.6% of the patients in the tocilizumab group and 21.2% of the patients in the placebo group were still receiving supplemental oxygen. Patients who received tocilizumab had fewer serious infections than patients who received placebo.

Tocilizumab was not effective for preventing intubation or death in moderately ill hospitalized patients with Covid-19. Some benefit or harm cannot be ruled out, however, because the confidence intervals for efficacy comparisons were wide."

See also: JAMA Internal Medicine articles published on 20 October, below.

PLoS One: [PTSD symptoms among health workers and public service providers during the COVID-19 outbreak](#)

"In the frontline of the pandemic stand healthcare workers and public service providers, occupations which have proven to be associated with increased mental health problems during pandemic crises. This cross-sectional, survey-based study collected data from 1773 healthcare workers and public service providers throughout Norway between March 31, 2020 and April 7, 2020, which encompasses a timeframe where all non-pharmacological interventions (NPIs) were held constant. Post-traumatic stress disorder (PTSD), anxiety and depression were assessed by the Norwegian version of the PTSD checklist (PCL-5), General Anxiety Disorder –7, and Patient Health Questionnaire-9 (PHQ-9), respectively. Health anxiety and specific predictors were assessed with specific items. Multiple regression

analysis was used for predictor analysis. A total of 28.9% of the sample had clinical or subclinical symptoms of PTSD, and 21.2% and 20.5% were above the established cut-offs for anxiety and depression. Those working directly in contrast to indirectly with COVID-19 patients had significantly higher PTSD symptoms. Worries about job and economy, negative metacognitions, burnout, health anxiety and emotional support were significantly associated with PTSD symptoms, after controlling for demographic variables and psychological symptoms. Health workers and public service providers are experiencing high levels of PTSD symptoms, anxiety and depression during the COVID-19 pandemic. Health workers working directly with COVID-19 patients have significantly higher levels of PTSD symptoms and depression compared to those working indirectly. Appropriate action to monitor and reduce PTSD, anxiety, and depression among these groups of individuals working in the frontline of pandemic with crucial societal roles should be taken immediately."

20 October 2020

BMJ: [Living risk prediction algorithm \(QCOVID\) for risk of hospital admission and mortality from coronavirus 19 in adults: national derivation and validation cohort study](#)

- "Public policy measures and clinical risk assessment relevant to covid-19 can be aided by rigorously developed and validated risk prediction models
- Published risk prediction models for covid-19 are subject to a high risk of bias with optimistic reported performance, raising concern that these models may be unreliable when applied in practice
- Novel clinical risk prediction models (QCOVID) have been developed and evaluated to identify risks of short term severe outcomes due to covid-19
- The risk models have excellent discrimination and are well calibrated; they will be regularly updated as the absolute risks change over time
- QCOVID has the potential to support public health policy by enabling shared decision making between clinicians and patients, targeted recruitment for clinical trials, and prioritisation for vaccination"

Infect Control Hosp Epidemiol: [Understanding Viral Shedding of SARS-CoV-2: Review of Current Literature](#)

"Transmission of SARS-CoV-2 has significant implications for hospital infection prevention and control, discharge management, and public health. We reviewed available literature to reach an evidenced-based consensus on the expected duration of viral shedding.

We queried four scholarly repositories/search engines for studies reporting SARS-CoV-2 viral shedding dynamics by PCR and/or culture available through September 8, 2020. We

calculated the pooled median duration of viral RNA shedding from respiratory and fecal sources.

Seventy-seven studies on SARS-CoV-2 were included. All studies reported PCR-based testing and 12 also included viral culture data. The overall pooled median duration of RNA shedding from respiratory sources was 18.4 days (95% CI: 15.5 days - 21.3 days; I²=98.87%, p<0.01) among 28 studies. When stratified by disease severity, the pooled median duration of viral RNA shedding from respiratory sources was 19.8 days (95% CI: 16.2 days – 23.5 days; I²=96.42%, p<0.01) among severely ill patients and 17.2 days (95% CI: 14.0 days - 20.5 days; I²=95.64%, p<0.01) in mild/moderate illness. Viral RNA was detected up to 92 days after symptom onset. Viable virus was isolated by culture from -6 days to 20 days relative to symptom onset.

SARS-COV-2 RNA shedding can be prolonged, yet high heterogeneity exists. Detection of viral RNA may not correlate with infectivity since available viral culture data suggests shorter durations of shedding of viable virus. Additional data is needed to determine the duration of shedding of viable virus and the implications for risk of transmission."

JAMA Netw Open: [Factors Associated With US Adults' Likelihood of Accepting COVID-19 Vaccination](#)

"Question: What factors are associated with US adults' choice of and willingness to accept a hypothetical COVID-19 vaccine?

Findings: In this survey study of a national sample of 1971 US adults, vaccine-related attributes (eg, vaccine efficacy, adverse effects, and protection duration) and political factors (eg, US Food and Drug Administration approval process, national origin of vaccine, and endorsements) were associated with preferences for choosing a hypothetical COVID-19 vaccine. Health care attitudes and practices, political partisanship, and demographic characteristics, including age, sex, and race/ethnicity, were also associated with willingness to receive a vaccination.

Meaning: The results of this survey study may help inform public health campaigns to address vaccine hesitancy."

JAMA Internal Medicine published 3 research articles on use of tocilizumab in COVID-19 with an [accompanying editorial](#). See also: NEJM article published 21 October, above.

JAMA Intern Med: [Association Between Early Treatment With Tocilizumab and Mortality Among Critically Ill Patients With COVID-19](#)

"Question: Is early treatment with tocilizumab associated with a lower mortality rate among critically ill patients with coronavirus disease 2019 (COVID-19)?

Findings: In this multicenter cohort study that included 3924 patients, the risk of in-hospital death was estimated to be lower with tocilizumab treatment in the first 2 days of intensive care unit admission compared with no early use of tocilizumab.

Meaning: These findings suggest that among critically ill patients with COVID-19, early treatment with tocilizumab may reduce mortality, although the findings may be susceptible to unmeasured confounding, and further research from randomized clinical trials is needed."

JAMA Intern Med: [Effect of Tocilizumab vs Usual Care in Adults Hospitalized With COVID-19 and Moderate or Severe Pneumonia: A Randomized Clinical Trial](#)

"Question: What is the effect of tocilizumab, an anti-interleukin-6 receptor antibody, in patients with COVID-19 and moderate-to-severe pneumonia?

Findings: In this randomized clinical trial that included 130 patients hospitalized with COVID-19 and moderate-to-severe pneumonia, tocilizumab did not reduce the World Health Organization 10-point Clinical Progression Scale scores lower than 5 at day 4, and the proportion of patients with noninvasive ventilation, intubation, or death at day 14 was 36% with usual care and 24% with tocilizumab. No difference in mortality over 28 days was found between the 2 groups.

Meaning: Tocilizumab may reduce the need for mechanical and noninvasive ventilation or death by day 14 but not mortality by day 28; further studies are necessary to confirm these preliminary results."

JAMA Intern Med: [Effect of Tocilizumab vs Standard Care on Clinical Worsening in Patients Hospitalized With COVID-19 Pneumonia: A Randomized Clinical Trial](#)

"Question: Does early tocilizumab administration prevent clinical worsening in patients hospitalized with coronavirus disease 2019 (COVID-19) pneumonia?

Findings: In this randomized clinical trial of 126 patients with a partial pressure of arterial oxygen to fraction of inspired oxygen (Pao₂/Fio₂) ratio between 200 and 300 mm Hg at enrollment, the rate of the primary clinical end point (clinical worsening) was not significantly different between the control group and the tocilizumab group.

Meaning: The administration of tocilizumab in patients with COVID-19 pneumonia and a Pao₂/Fio₂ ratio between 200 and 300 mm Hg did not reduce the risk of clinical worsening; further blinded, placebo-controlled randomized clinical trials are needed to confirm the results and to evaluate possible applications of tocilizumab in different stages of the disease."

MMWR: [Risk for In-Hospital Complications Associated with COVID-19 and Influenza — Veterans Health Administration, United States, October 1, 2018–May 31, 2020](#)

"Patients hospitalized with COVID-19 are reported to be at risk for respiratory and nonrespiratory complications.

Hospitalized patients with COVID-19 in the Veterans Health Administration had a more than five times higher risk for in-hospital death and increased risk for 17 respiratory and nonrespiratory complications than did hospitalized patients with influenza. The risks for sepsis and respiratory, neurologic, and renal complications of COVID-19 were higher among non-Hispanic Black or African American and Hispanic patients than among non-Hispanic White patients.

Compared with influenza, COVID-19 is associated with increased risk for most respiratory and nonrespiratory complications. Certain racial and ethnic minority groups are disproportionately affected by COVID-19."

MMWR: [Excess Deaths Associated with COVID-19, by Age and Race and Ethnicity — United States, January 26–October 3, 2020](#)

"As of October 15, 216,025 deaths from COVID-19 have been reported in the United States; however, this might underestimate the total impact of the pandemic on mortality.

Overall, an estimated 299,028 excess deaths occurred from late January through October 3, 2020, with 198,081 (66%) excess deaths attributed to COVID-19. The largest percentage increases were seen among adults aged 25–44 years and among Hispanic or Latino persons.

These results inform efforts to prevent mortality directly or indirectly associated with the COVID-19 pandemic, such as efforts to minimize disruptions to health care."

Nat Med: [A global survey of potential acceptance of a COVID-19 vaccine](#)

"Several coronavirus disease 2019 (COVID-19) vaccines are currently in human trials. In June 2020, we surveyed 13,426 people in 19 countries to determine potential acceptance rates and factors influencing acceptance of a COVID-19 vaccine. Of these, 71.5% of participants reported that they would be very or somewhat likely to take a COVID-19 vaccine, and 61.4% reported that they would accept their employer's recommendation to do so. Differences in acceptance rates ranged from almost 90% (in China) to less than 55% (in Russia). Respondents reporting higher levels of trust in information from government sources were more likely to accept a vaccine and take their employer's advice to do so."

19 October 2020

J Pediatric Infect Dis Soc: [Pancreatitis in Pediatric Patients with COVID-19](#)

"Over the past several months, understanding of the novel Coronavirus Disease 2019 (COVID-19) has grown extensively with new findings of organ system involvement reported on a regular basis. Pulmonary manifestations of the disease appear to be the most common presentation of COVID-19, but extra-pulmonary disease including gastrointestinal symptomatology are becoming more apparent. To date, the association between COVID-19 and pancreatitis has been limited to a few case reports, mostly in adult patients. This case series illustrates the clinical presentation of three pediatric patients who were diagnosed with pancreatitis about a week after the onset of COVID-19 symptoms. Diagnosis of pancreatitis was based on two of three following criteria: (1) abdominal pain, (2) amylase and lipase elevated over 3 times the upper limit of normal, and/or (3) abdominal imaging consistent with pancreatitis (1). Although the direct causation is hard to prove, the temporal association does suggest the relationship between SARS-CoV-2 and pancreatitis in children."

JAMA: [Herd Immunity and Implications for SARS-CoV-2 Control](#)

"Herd immunity is an important defense against outbreaks and has shown success in regions with satisfactory vaccination rates. Importantly, even small deviations from protective levels can allow for significant outbreaks due to local clusters of susceptible individuals, as has been seen with measles over the past few years. Therefore, vaccines must not only be effective, but vaccination programs must be efficient and broadly adopted to ensure that those who cannot be directly protected will nonetheless derive relative protections."

17 October 2020

Clin Infect Dis: [Hydroxychloroquine as pre-exposure prophylaxis for COVID-19 in healthcare workers: a randomized trial](#)

"We conducted a randomized, double-blind, placebo-controlled clinical trial of healthcare workers with ongoing exposure to persons with SARS-CoV-2, including those working in emergency departments, intensive care units, Covid-19 hospital wards, and first responders. Participants across the United States and in the Canadian province of Manitoba were randomized to hydroxychloroquine 400mg once weekly or twice weekly for 12 weeks. The primary endpoint was confirmed or probable Covid-19-compatible illness. We measured hydroxychloroquine whole blood concentrations.

We enrolled 1483 healthcare workers, of which 79% reported performing aerosol-generating procedures. The incidence of Covid-19 (laboratory-confirmed or symptomatic compatible illness) was 0.27 events per person-year with once-weekly and 0.28 events per

person-year with twice-weekly hydroxychloroquine compared with 0.38 events per person-year with placebo. For once weekly hydroxychloroquine prophylaxis, the hazard ratio was 0.72 (95%CI 0.44 to 1.16; P=0.18), and for twice-weekly was 0.74 (95%CI 0.46 to 1.19; P=0.22) as compared with placebo. Median hydroxychloroquine concentrations in whole blood were 98 ng/mL (IQR, 82-120) with once-weekly and 200 ng/mL (IQR, 159-258) with twice-weekly dosing. Hydroxychloroquine concentrations did not differ between participants who developed Covid-19-compatible illness (154 ng/mL) versus participants without Covid-19 (133 ng/mL; P=0.08).

Pre-exposure prophylaxis with hydroxychloroquine once or twice weekly did not significantly reduce laboratory-confirmed Covid-19 or Covid-19-compatible illness among healthcare workers."

16 October 2020

Am J Respir Crit Care Med: [Impulse Dispersion of Aerosols During Singing and Speaking: A Potential COVID-19 Transmission Pathway](#)

"Group singing events have been associated with several outbreaks of infection during the COVID-19 pandemic. This link supports the possibility that aerosols are partly responsible for person-to-person infection. This study aims to analyze the impulse dispersion dynamics of aerosols in professional singers concerning the differences between singing a text, singing a vowel or speaking on different levels of loudness....

Although the median distance to the front reached values lower than 1m for the MT+ and MT- tasks, many subjects reached greater distances up to 1.4m. The dispersion distance to the side was much lower. Because of the maximum dispersion, no distances lower than 2-2.5m between persons to the front and 1.5m to the side should be recommended as safety-distance. However, safety is not only dependent on the measured near field under controlled laboratory conditions, but also on accumulation of aerosols over time during phonation and the convectional flow in realistic environments. Therefore, a continuous ventilation and/or filtration of the air volume during singing could diminish the amount of aerosols and therefore reduce the risk of infection transmissions. Further, wearing masks could affect the speed of aerosol dispersion; however, it could also restrain the articulation."

Anaesthesia: [Renal impairment and its impact on clinical outcomes in patients who are critically ill with COVID-19: a multicentre observational study](#)

"Renal impairment is common in patients who are critically ill with coronavirus disease-19 (COVID-19). We examined the association between acute and chronic kidney disease with clinical outcomes in 372 patients with coronavirus disease-19 admitted to four regional

intensive care units between 10 March 2020 and 31 July 2020. A total of 216 (58%) patients presented with COVID-19 and renal impairment. Acute kidney injury and/or chronic kidney disease was associated with greater in-hospital mortality compared with patients with preserved renal function (107/216 patients (50%) (95%CI 44–57) vs. 32/156 (21%) (95%CI 15–28), respectively; $p < 0.001$, relative risk 2.4 (95%CI 1.7–3.4)). Mortality was greatest in patients with renal transplants (6/7 patients (86%) (95%CI 47–100)). Mortality rates increased in patients with worsening renal injury according to the Kidney Disease: Improving Global Outcomes classification: stage 0 mortality 33/157 patients (21%) (95%CI 15–28) vs. stages 1–3 mortality 91/186 patients (49%) (95%CI 42–56); $p < 0.001$, relative risk 2.3 (95%CI 1.7–3.3). Survivors were less likely to require renal replacement therapy compared with non-survivors (57/233 patients (24%) vs. 64/139 patients (46%), respectively; $p < 0.001$, relative risk 1.9 (95%CI 1.4–2.5)). One-fifth of survivors who required renal replacement therapy acutely in intensive care continued to require renal support following discharge. Our data demonstrate that renal impairment in patients admitted to intensive care with COVID-19 is common and is associated with a high mortality and requirement for on-going renal support after discharge from critical care. Our findings have important implications for future pandemic planning in this patient cohort."

MMWR: [Race, Ethnicity, and Age Trends in Persons Who Died from COVID-19 — United States, May–August 2020](#)

"Persons aged ≥ 65 years and members of minority racial and ethnic groups are disproportionately represented among COVID-19–associated deaths.

Analysis of 114,411 COVID-19–associated deaths reported to National Vital Statistics System during May–August 2020, found that 51.3% of decedents were non-Hispanic White, 24.2% were Hispanic or Latino (Hispanic), and 18.7% were non-Hispanic Black. The percentage of Hispanic decedents increased from 16.3% in May to 26.4% in August.

These results can inform public health messaging and mitigation efforts focused on prevention and early detection of infection among disproportionately affected groups so as to minimize subsequent mortality."

15 October 2020

Eur J Pharmacol: [Application of methylene blue -vitamin C -N-acetyl cysteine for treatment of critically ill COVID-19 patients, report of a phase-I clinical trial](#)

"COVID-19 is a global catastrophic event that causes severe acute respiratory syndrome. The mechanism of the disease remains unclear, and hypoxia is one of the main complications. There is no currently approved protocol for treatment. The microbial threat as induced by COVID-19 causes the activation of macrophages to produce a huge amount of inflammatory molecules and nitric oxide (NO). Activation of macrophages population into a

pro-inflammatory phenotype induces a self-reinforcing cycle. Oxidative stress and NO contribute to this cycle, establishing a cascade inflammatory state that can kill the patient. Interrupting this vicious cycle by a simple remedy may save critical patients' lives. Nitrite, nitrate (the metabolites of NO), methemoglobin, and prooxidant-antioxidant-balance levels were measured in 25 ICU COVID-19 patients and 25 healthy individuals. As the last therapeutic option, five patients were administered methylene blue-vitamin C–N-acetyl Cysteine (MCN). Nitrite, nitrate, methemoglobin, and oxidative stress were significantly increased in patients in comparison to healthy individuals. Four of the five patients responded well to treatment. In conclusion, NO, methemoglobin and oxidative stress may play a central role in the pathogenesis of critical COVID-19 disease. MCN treatment seems to increase the survival rate of these patients. Considering the vicious cycle of macrophage activation leading to deadly NO, oxidative stress, and cytokine cascade syndrome; the therapeutic effect of MCN seems to be reasonable. Accordingly, a wider clinical trial has been designed. It should be noted that the protocol is using the low-cost drugs which the FDA approved for other diseases."

Health Aff: [COVID-19 Emergency Sick Leave Has Helped Flatten The Curve In The United States](#)

"This paper tests whether the coronavirus disease 2019 (COVID-19) emergency sick leave provision of the bipartisan Families First Coronavirus Response Act (FFCRA) reduced the spread of the virus. Using a difference-in-differences strategy, we compare pre-post FFCRA changes in newly reported COVID-19 cases in states where workers gained the right to take paid sick leave (treatment group) to states where workers already had access to paid sick leave (control group). We adjust for differences in testing, day-of-the-week reporting, structural state differences, general virus dynamics, and policies such as stay-at-home orders (SHO). Compared to the control group and relative to the pre-FFCRA period, states that gained access to paid sick leave through FFCRA saw a statistically significant 400 fewer confirmed cases per day. This estimate translates into roughly 1 prevented COVID-19 case per day, per 1300 workers who newly gained the option to take up to two weeks of paid sick leave."

Lancet Infect Dis: [Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBIBP-CorV: a randomised, double-blind, placebo-controlled, phase 1/2 trial](#)

"This is the first report of an inactivated SARS-CoV-2 vaccine tested on human participants. This trial showed that the inactivated SARS-CoV-2 vaccine BBIBP-CorV was safe, tolerable, and immunogenic in healthy people. Two-dose immunisations (on days 0 and 28) at all doses (2 µg, 4 µg, and 8 µg) in two age groups (18–59 years and ≥60 years) induced neutralising antibodies in 100% of vaccine recipients. Mild adverse reactions, including pain and fever, were observed but no severe adverse reaction was reported in all groups.

A vaccine against SARS-CoV-2 is urgently needed to prevent further waves of COVID-19. Immunisation with BBIBP-CorV results in rapid induction of immune responses against

SARS-CoV-2, and would be valuable in preventing or limiting the COVID-19 pandemic. Further clinical studies are warranted to evaluate the potential of this vaccine in clinical application."

PNAS: [Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries](#)

"Public health response to COVID-19 requires behavior changes—isolation at home, wearing masks. Its effectiveness depends on generalized compliance. Original data from two waves of a survey conducted in March–April 2020 in eight Organisation for Economic Co-operation and Development countries (n = 21,649) show large gender differences in COVID-19–related beliefs and behaviors. Women are more likely to perceive the pandemic as a very serious health problem and to agree and comply with restraining measures. These differences are only partially mitigated for individuals cohabiting or directly exposed to COVID-19. This behavioral factor contributes to substantial gender differences in mortality and is consistent with women-led countries responding more effectively to the pandemic. It calls for gender-based public health policies and communication."

10 October 2020

J Infect Dis: [Complement activation in the disease course of COVID-19 and its effects on clinical outcomes](#)

"Excessive activation of immune responses in coronavirus disease 2019 (COVID-19) is considered to be related to disease severity, complications and mortality. The complement system is an important component of innate immunity and can stimulate inflammation, but its role in COVID-19 is unknown.

A prospective, longitudinal, single center study was performed in hospitalized COVID-19 patients. Plasma concentrations of complement factors C3a, C3c, and terminal complement complex (TCC) were assessed at baseline and during hospital admission. In parallel, routine laboratory and clinical parameters were collected from medical files and analyzed.

Complement factors C3a, C3c and TCC were significantly increased in plasma of COVID-19 patients compared to healthy controls ($p < 0.05$). These complement factors were especially elevated in ICU patients during the entire disease course ($p < 0.005$ for C3a and TCC). More intense complement activation was observed in patients that deceased and in patients with thromboembolic events.

COVID-19 patients demonstrate activation of the complement system, which is related to disease severity. This pathway may be involved in the dysregulated pro-inflammatory response associated with increased mortality and thromboembolic complications.

Components of the complement system might have potential as prognostic markers for disease severity and as therapeutic targets in COVID-19."

ICYMI

Am J Respir Crit Care Med: [Outcomes of Critically Ill Pregnant Women with COVID-19 in the United States](#) (published online 07 October 2020)

"Limited data are available on the clinical course of pregnant women with COVID-19 who require ICU care, particularly when compared to age-appropriate controls. Using data from a large, multicenter, geographically-diverse cohort of critically ill adults with laboratory-confirmed COVID-19 admitted to 67 hospitals across the United States, we report the clinical features of 32 pregnant and 64 non-pregnant women matched according to age and severity of illness. All pregnant women survived, and there were no fetal deaths, but pregnant women had high rates of preterm delivery and cesarean section."

PLoS One: [Barriers and facilitators of adherence to social distancing recommendations during COVID-19 among a large international sample of adults](#) (published online 07 October 2020)

"This study found that adherence to social distancing recommendations vary depending on the behaviour, with none of the surveyed behaviours showing perfect adherence. Strongest facilitators included wanting to protect the self, feeling a responsibility to protect the community, and being able to work/study remotely; strongest barriers included having friends or family who needed help with running errands and socializing in order to avoid feeling lonely. Future interventions to improve adherence to social distancing measures should couple individual-level strategies targeting key barriers to social distancing identified herein, with effective institutional measures and public health interventions. Public health campaigns should continue to highlight compassionate attitudes towards social distancing."

Br J Sports Med: [Is extensive cardiopulmonary screening useful in athletes with previous asymptomatic or mild SARS-CoV-2 infection?](#) (published online 05 October 2020)

"In this small cohort of athletes with previous asymptomatic/mild SARS-CoV-2 infection, a comprehensive screening protocol including blood tests, spirometry, resting ECG, stress-test ECG with oxygen saturation monitoring and echocardiogram did not identify relevant anomalies. While larger studies are needed, extensive cardiorespiratory and haematological screening in athletes with asymptomatic/mild SARS-CoV-2 infection appears unnecessary."

Eur J Clin Microbiol Infect Dis: [Sensitivity of nasopharyngeal, oropharyngeal, and nasal wash specimens for SARS-CoV-2 detection in the setting of sampling device shortage](#) (published online 17 September 2020)

"In the context of an unprecedented shortage of nasopharyngeal swabs (NPS) or sample transport media during the coronavirus disease 2019 (COVID-19) crisis, alternative methods

for sample collection are needed. To address this need, we validated a cell culture medium as a viral transport medium, and compared the analytical sensitivity of SARS-CoV-2 RT-PCR in nasal wash (NW), oropharyngeal swab (OPS), and NPS specimens. Both the clinical and analytical sensitivity were comparable in these three sample types. OPS and NW specimens may therefore represent suitable alternatives to NPS for SARS-CoV-2 detection."

Selected Literature: Preprints

Preprints are found on preprint servers such as [arXiv](#), [bioRxiv](#), and [medRxiv](#); they are commonly used for biomedical research. Preprints may later be published in peer-reviewed journals.

Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

medRxiv: [The Effects of Coronavirus Victimization Distress and Coronavirus Racial Bias on Mental Health Among Black, Indigenous and Latinx Young Adults in the United States](#) (posted 21 October 2020)

"Background. People of color in the U.S. have been disproportionately impacted by the COVID 19 pandemic in terms of rates of infection and morbidity. Explanations for these disparities include over-representation as essential workers and long-standing inequities in access to health services. Prior to the pandemic, racial discrimination has been associated with depression and general anxiety. However, the effect of discrimination and racial bias specific to the Coronavirus on mental health has not been examined. The aim of this study was to assess the effects of Coronavirus victimization distress and Coronavirus racial bias beliefs on the mental health of young adult people of color.

Method. An online survey administered to a national sample of 350 Black, Indigenous and Latinx adults (18 to 25 years) included Coronavirus health risks, prescription and financial security, measure of depression and anxiety and 2 new psychometrically validated measures for Coronavirus related victimization distress and racial bias.

Results. Employment, number of Coronavirus health risks, Coronavirus victimization distress and Coronavirus racial bias were positively correlated with each other and with depression and anxiety. By contrast, household income and perceived financial and prescription security were negatively correlated with Coronavirus victimization, Coronavirus racial bias and with the mental health indices. Structural equation modeling controlling for demographic variables indicated perceived Coronavirus racial bias mediated the effect of Coronavirus victimization distress on both mental health measures across all groups.

Conclusions. Results suggest the COVID-19 pandemic has created new pathways to mental health disparities among young adults of color by reversing formerly protective factors such as employment, and by exacerbating structural and societal inequities linked to race. Findings highlight the necessity of creating mental health services tailored to the specific needs of racial/ethnic minorities during the current and future health crises."

medRxiv: [Medium-term effects of SARS-CoV-2 infection on multiple vital organs, exercise capacity, cognition, quality of life and mental health, post-hospital discharge](#) (posted 18 October 2020)

"Background The medium-term effects of Coronavirus disease (COVID-19) on multiple organ health, exercise capacity, cognition, quality of life and mental health are poorly understood.

Methods Fifty-eight COVID-19 patients post-hospital discharge and 30 comorbidity-matched controls were prospectively enrolled for multiorgan (brain, lungs, heart, liver and kidneys) magnetic resonance imaging (MRI), spirometry, six-minute walk test, cardiopulmonary exercise test (CPET), quality of life, cognitive and mental health assessments.

Findings At 2-3 months from disease-onset, 64% of patients experienced persistent breathlessness and 55% complained of significant fatigue. On MRI, tissue signal abnormalities were seen in the lungs (60%), heart (26%), liver (10%) and kidneys (29%) of patients. COVID-19 patients also exhibited tissue changes in the thalamus, posterior thalamic radiations and sagittal stratum on brain MRI and demonstrated impaired cognitive performance, specifically in the executive and visuospatial domain relative to controls. Exercise tolerance (maximal oxygen consumption and ventilatory efficiency on CPET) and six-minute walk distance ($405 \pm 118\text{m}$ vs $517 \pm 106\text{m}$ in controls, $p < 0.0001$) were significantly reduced in patients. The extent of extra-pulmonary MRI abnormalities and exercise tolerance correlated with serum markers of ongoing inflammation and severity of acute illness. Patients were more likely to report symptoms of moderate to severe anxiety (35% versus 10%, $p = 0.012$) and depression (39% versus 17%, $p = 0.036$) and significant impairment in all domains of quality of life compared to controls.

Interpretation A significant proportion of COVID-19 patients discharged from hospital experience ongoing symptoms of breathlessness, fatigue, anxiety, depression and exercise limitation at 2-3 months from disease-onset. Persistent lung and extra-pulmonary organ MRI findings are common. In COVID-19 survivors, chronic inflammation may underlie multiorgan abnormalities and contribute to impaired quality of life."

medRxiv: [COVID-19 Aerosolized Viral Loads, Environment, Ventilation, Masks, Exposure Time, Severity, And Immune Response: A Pragmatic Guide Of Estimates](#) (posted 16 October 2020)

"This study helps answer the question "How long may a person safely remain within a given environment and what is the associated risk relative to other environments". Understanding how COVID-19 infection likelihood, symptom severity, and immune response

correlate to aerosolized viral load concentration exposure levels and time durations could enable optimized Non-Pharmaceutical Interventions (NPI) that reduce severe case counts and improve at-large epidemiologic responses. The model herein estimates the relationships between aerosolized viral load concentrations present in a given environment containing infected persons, the exposure time duration, ventilation, mask usage, exercise / activity level, and likelihood of infection, severity level, and immune response. This study references peer reviewed and published studies and uses them as data sources. Measured aerosolized viral load concentration data from a hospital environment is used to estimate exposure time durations associated with exposures at multiple viral load levels, within multiple indoor ventilation and outdoor environment scenarios, with the exposed subject respirating at both light activity and heavy exercise liter-per-minute volumes, and without and without wearing surgical masks. Information from ASHRAE Office Ventilation standards and an Outdoor Air Exchange model are a part of the model. This estimated total viral load accumulated within specific exposure time durations in the various environmental scenarios is then interpreted using human challenge viral load escalation data into severity categories including Not Ill, Minor Illness, Clinical Mild Illness, and Possible Severe Illness. Immune response data related to these categories is also provided. When appropriately interpreted for individualized applications, the estimates herein could contribute to guidance for those at low-risk for a severe case that have no obvious COVID-19 co-morbidities, with the understanding that those at higher risk should seek to avoid all exposure risk. The estimates herein may help efforts to strike a balance in developing holistic epidemiologic interventions that consider the effects of these interventions on economic, civic, social, and mental health, which have pathologies within their own realms."

Webinars

- WHAT: Webinar: Impact of COVID-19 on Children with Special Healthcare Needs
- WHEN: Thursday, 29 October 2020, 1300–1400 ET
- DETAILS: "The fourth and final webinar in this series will focus on the impact of the COVID-19 pandemic on children with special healthcare needs. Panelists will discuss related programs, the impact of COVID-19 and social determinants on this population of children, behavioral health/ psychological effects, child neglect/abuse, and secondary disaster preparedness planning considerations."
- REGISTER: <https://register.gotowebinar.com/register/4557060491232878864>
- PREVIOUS: [Webinar 1: Child Health and Wellness \[pdf\]](#) (includes slides and link to recording)
[Webinar 2: Child Emotional and Social Effects \[pdf\]](#) (includes slides and link to recording)

Webinar 3: The Effects of Secondary Disasters on Children (held Friday 23 October; slides and recording forthcoming)

- WHAT: Webinar: ProMED and COVID-19 - A Q&A With Our Moderator Team
- WHEN: [Available on demand](#)
- DETAILS: "On the night of December 30, 2019, ISID's Program for Monitoring Emerging Diseases (ProMED) Deputy Editor, Dr. Marjorie Pollack posted a request for information to the ProMED network after being contacted by a trusted colleague about a cluster of undiagnosed pneumonia cases in Wuhan, China.
- This ProMED webinar on the ISID Knowledge Exchange & E-Learning Platform (IKEEP) highlights and discusses the critical role ProMED played in the early identification of COVID-19's emergence; subsequent notification of the international community; and ongoing educational efforts within the infectious disease community. Available now on IKEEP, this session features answers to questions that were submitted by ProMED subscribers."

News in Brief

Only ~~four~~ ([sorry, Skagway](#) – welcome to lockdown) three counties in the US remain COVID-free ([ABC](#); warning: video autoplay).

The 'darkest part of the pandemic' may be the next 3 months ([PBS NH](#); video and transcript).

Treatments and Therapies

Remdesivir (brand name: Veklury) is officially the first drug approved by the FDA to treat COVID-19. On Thursday, 22 October 2020, the agency approved the antiviral drug "for use in adult and pediatric patients 12 years of age and older and weighing at least 40 kilograms (about 88 pounds) for the treatment of COVID-19 requiring hospitalization" ([FDA](#)).

Rates of deaths due to the coronavirus are dropping, probably because we are getting better at healing patients survive COVID-19 ([NPR](#)).

Antibody drug shortages are raising concerns about fair allocation and who will pay for the expensive, sometimes experimental treatments ([NPR](#); see also the [CIDRAP Viewpoint report](#)).

A 14-year old has won a \$25,000 prize for an in-silico discovery that could lead to a potential therapy for the coronavirus ([CNN](#)).

"Where have all the hospital patients gone?" ([NYT](#)).

Vaccines

On Thursday, independent advisors to the FDA met to discuss and lay the groundwork for what vaccines might get recommended for public use ([WaPo](#)).

Public health officials have petitioned Congress for \$8.4 billion to fund COVID-19 vaccine distribution and administration ([HPN](#)).

Moderna has reached full enrollment in their COVID-19 vaccine trial, with 37% participants identifying as minorities ([WaPo](#)).

AstraZeneca will not pause its vaccine trial after the death of a participant in Brazil, as they were likely part of the control group ([NBC](#); [Reuters](#)).

The UK is moving forward with a COVID-19 human challenge study, where volunteers will be deliberately exposed to low doses of SARS-CoV-2 ([CNBC](#)).

We don't know how well vaccines might (or might not) work in people who are obese ([Nature](#)).

"Understanding COVID-19 vaccine efficacy" ([Science](#)).

Maybe Skip This Part If You Have a Fear of Flying

A woman who was on a flight from New Mexico to Texas in July died of COVID-19. She had trouble breathing while the plane was on the tarmac and died while the plane was still on the tarmac; it's not clear if she was aware she had COVID-19 ([BuzzFeed](#)).

Wearing a mask – especially a N95 mask or even a P100 respirator – during the flight can make a big difference though ([NPR](#)).

And maybe stay away from the middle seat, even if it means rebooking ([WaPo](#); see also this [medRxiv preprint](#), posted 22 October 2020).

A Deeper Dive

Long read: "The false promise of herd immunity for COVID-19" ([Nature](#)).

Long read: "The tree that could help stop the pandemic: the rare Chilean soapbark tree produces compounds that can boost the body's reaction to vaccines" ([Atlantic](#)).

"Covid-19: the global crisis – in data. Charts and maps show paradoxes of a pandemic that has claimed a million lives" ([FT](#); includes videos and other visualizations).

Other Outbreaks and Health Threats

The outbreak of *Salmonella* enteritidis linked to peaches appears to be over ([CDC](#)).

In case you were hoping for a mild flu season because COVID-19, well... experts suggest you should prepare for a bad flu season on top of the pandemic, just in case ([CIDRAP](#)).

Saturday, 24 October is [World Polio Day](#). Poliovirus is still a public health emergency with a risk of spread in various parts of the world; COVID-19 has disrupted vaccine distribution, coordination, and surveillance ([WHO](#)).

Purdue Pharma, the maker of OxyContin, pled guilty to federal criminal charges for its role in the opioid crisis; the company will pay more than \$8 billion in fines, forfeit, and civil liability (some of which will go toward opioid treatment and abatement programs), and will close ([CNN](#)).

And Now for Something Completely Different

Wait... we may have some hidden, previously unknown salivary glands? ([CNN](#); read full text at [Radiotherapy and Oncology](#))

Speaking of things that make your mouth water... blame your brain cells if you thirst for something salty after a workout ([NPR](#); read article at [Nature](#)).

References

Statistics

JHU CSSE: Johns Hopkins Center for Systems Science and Engineering. Coronavirus COVID-19 Global Cases. Link: <https://coronavirus.jhu.edu/map.html>

VA DOH: Virginia Department of Health. COVID-19 in Virginia. Link: <http://www.vdh.virginia.gov/coronavirus/>

Updates and Special Reports

CIDRAP: Center for Infectious Disease Research and Policy. The CIDRAP Viewpoint: Part 6: Ensuring a Resilient US Prescription Drug Supply (21 October 2020). Link: <https://www.cidrap.umn.edu/sites/default/files/public/downloads/cidrap-covid19-viewpoint-part6.pdf>

CDC: Centers for Disease Control and Prevention. Contact Tracing – Appendix A, Glossary of Terms (updated 21 October 2020; accessed 22 October 2020). Link: <https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/appendix.html#contact>

Selected Literature: Peer-Reviewed Journals

Am J Respir Crit Care Med: Easter SR, Gupta S, Brenner SK, Leaf DE. Outcomes of Critically Ill Pregnant Women with COVID-19 in the United States. Am J Respir Crit Care Med. 2020 Oct 7. doi: 10.1164/rccm.202006-2182LE. Epub ahead of print. PMID: 33026829. Link: <https://www.atsjournals.org/doi/10.1164/rccm.202006-2182LE>

Am J Respir Crit Care Med: Echternach M, Gantner S, Peters G, Westphalen C, Benthau T, Jakubaß B, Kuranova L, Döllinger M, Kniesburg S. Impulse Dispersion of Aerosols During Singing and Speaking: A Potential COVID-19 Transmission Pathway. Am J Respir Crit Care Med. 2020 Oct 16. doi: 10.1164/rccm.202009-3438LE. Epub ahead of print. PMID: 33064957. Link: <https://www.atsjournals.org/doi/abs/10.1164/rccm.202009-3438LE>

Anaesthesia: Gasparini M, Khan S, Patel JM, Parekh D, Bangash MN, Stümpfle R, Shah A, Baharlo B, Soni S. Renal impairment and its impact on clinical outcomes in patients who are critically ill with COVID-19: a multicentre observational study. Anaesthesia. Published online 16 October 2020 doi:10.1111/anae.15293 Link: <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.15293>

Ann Intern Med: Clift AK, Coupland CAC, Keogh RH, Hemingway H, Hippisley-Cox J. COVID-19 Mortality Risk in Down Syndrome: Results From a Cohort Study Of 8 Million Adults. Ann Intern Med. 2020 Oct 21. doi: 10.7326/M20-4986. Epub ahead of print. PMID: 33085509. Link: <https://www.acpjournals.org/doi/10.7326/M20-4986>

BMJ: Agarwal A, Mukherjee A, Kumar G, Chatterjee P, Bhatnagar T, Malhotra P; PLACID Trial Collaborators. Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicentre randomised controlled trial (PLACID Trial). BMJ. 2020 Oct 22;371:m3939. doi: 10.1136/bmj.m3939. PMID: 33093056. Link: <https://www.bmj.com/content/371/bmj.m3939>

BMJ: Clift AK, Coupland CAC, Keogh RH, Diaz-Ordaz K, Williamson E, Harrison EM, Hayward A, Hemingway H, Horby P, Mehta N, Benger J, Khunti K, Spiegelhalter D, Sheikh A, Valabhji J, Lyons RA, Robson J, Semple MG, Kee F, Johnson P, Jebb S, Williams T, Hippisley-Cox J. Living risk prediction algorithm (QCOVID) for risk of hospital admission and mortality from coronavirus 19 in adults: national derivation and validation cohort study. BMJ. 2020 Oct 20;371:m3731. doi: 10.1136/bmj.m3731. PMID: 33082154; PMCID: PMC7574532. Link: <https://www.bmj.com/content/371/bmj.m3731>

Br J Sports Med: Gervasi SF, Pengue L, Damato L, Monti R, Pradella S, Pirroni T, Bartoloni A, Epifani F, Saggese A, Cuccaro F, Bianco M, Zeppilli P, Palmieri V. Is extensive cardiopulmonary screening useful in athletes with previous asymptomatic or mild SARS-CoV-2 infection? Br J Sports Med. 2020 Oct 5;bjsports-2020-102789. doi: 10.1136/bjsports-2020-102789. Epub ahead of print. PMID: 33020140; PMCID: PMC7536638. Link: <https://bjsm.bmj.com/content/early/2020/10/04/bjsports-2020-102789>

Clin Infect Dis: Rajasingham R, Bangdiwala AS, Nicol MR, Skipper CP, Pastick KA, Axelrod ML, Pullen MF, Nascene AA, Williams DA, Engen NW, Okafor EC, Rini BI, Mayer IA, McDonald EG, Lee TC, Li P, MacKenzie LJ, Balko JM, Dunlop SJ, Hullsiek KH, Boulware DR, Lofgren SM. Hydroxychloroquine as pre-exposure prophylaxis for COVID-19 in healthcare workers: a randomized trial. Clin Infect Dis. 2020 Oct 17:ciaa1571. doi: 10.1093/cid/ciaa1571. Epub ahead of print. PMID: 33068425. Link: <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1571/5929230>

Eur J Clin Microbiol Infect Dis: Calame A, Mazza L, Renzoni A, Kaiser L, Schibler M. Sensitivity of nasopharyngeal, oropharyngeal, and nasal wash specimens for SARS-CoV-2 detection in the setting of sampling device shortage. Eur J Clin Microbiol Infect Dis. 2020 Sep 17:1–5. doi: 10.1007/s10096-020-04039-8. Epub ahead of print. PMID: 32939576; PMCID: PMC7494432. Link: <https://link.springer.com/article/10.1007/s10096-020-04039-8>

Eur J Pharmacol: Alamdari DH, Moghaddam AB, Amini S, Keramati MR, Zarmehri AM, Alamdari AH, Damsaz M, Banpour H, Yarahmadi A, Koliakos G. Application of methylene blue -vitamin C - N-acetyl cysteine for treatment of critically ill COVID-19 patients, report of a phase-I clinical trial. Eur J Pharmacol. 2020 Oct 15;885:173494. doi: 10.1016/j.ejphar.2020.173494. Epub 2020 Aug 20. PMID: 32828741; PMCID: PMC7440159. Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/32828741/>

Health Aff: Pichler S, Wen K, Ziebarth NR. COVID-19 Emergency Sick Leave Has Helped Flatten The Curve In The United States. Health Aff (Millwood). 2020 Oct 15:101377hlthaff202000863. doi: 10.1377/hlthaff.2020.00863. Epub ahead of print. PMID: 33058691. Link: <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2020.00863>

Infect Control Hosp Epidemiol: Fontana L, Villamagna AH, Sikka MK, McGregor JC. Understanding Viral Shedding of SARS-CoV-2: Review of Current Literature. Infect Control Hosp Epidemiol. 2020 Oct 20:1-35. doi: 10.1017/ice.2020.1273. Epub ahead of print. PMID: 33077007. Link: <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/understanding-viral-shedding-of-sarscov2-review-of-current-literature/994F79458DCB4ED8597F141550598B69>

Infect Control Hosp Epidemiol: Ong SWX, Lee PH, Tan YK, Ling LM, Ho BCH, Ng CG, Wang DL, Tan BH, Leo YS, Ng OT, Wong MSY, Marimuthu K. Environmental contamination in a COVID-19 intensive care unit (ICU) - what is the risk? Infect Control Hosp Epidemiol. 2020 Oct 21:1-28. doi: 10.1017/ice.2020.1278. Epub ahead of print. PMID: 33081858. Link: <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/environmental-contamination-in-a-covid19-intensive-care-unit-icu-what-is-the-risk/78A3924FE8502E3C0778DF27731EB93B>

J Infect Dis: de Nooijer AH, Grondman I, Janssen NAF, Netea MG, Willems L, van de Veerdonk FL, Giamarellos-Bourboulis EJ, Toonen EJM, Joosten LAB. Complement activation in the disease course of COVID-19 and its effects on clinical outcomes. J Infect Dis. 2020 Oct 10;jiaa646. doi:

10.1093/infdis/jiaa646. Epub ahead of print. PMID: 33038254. Link:

<https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa646/5920660>

J Pediatric Infect Dis Soc: Samies NL, Yarbrough A, Boppana S. Pancreatitis in Pediatric Patients with COVID-19. J Pediatric Infect Dis Soc. 2020 Oct 19:piaa125. doi: 10.1093/jpids/piaa125.

Epub ahead of print. PMID: 33075134. Link: <https://academic.oup.com/jpids/article-lookup/doi/10.1093/jpids/piaa125>

JAMA: Bell BP, Romero JR, Lee GM. Scientific and Ethical Principles Underlying Recommendations From the Advisory Committee on Immunization Practices for COVID-19 Vaccination Implementation. JAMA. 2020 Oct 22. doi: 10.1001/jama.2020.20847. Epub ahead of print. PMID: 33090194. Link: <https://jamanetwork.com/journals/jama/fullarticle/2772326>

JAMA: Omer SB, Yildirim I, Forman HP. Herd Immunity and Implications for SARS-CoV-2 Control. JAMA. 2020 Oct 19. doi: 10.1001/jama.2020.20892. Epub ahead of print. PMID: 33074293. Link: <https://jamanetwork.com/journals/jama/fullarticle/2772167>

JAMA Intern Med: Gupta S, Wang W, Hayek SS, Chan L, Mathews KS, Melamed ML, Brenner SK, Leonberg-Yoo A, Schenck EJ, Radbel J, Reiser J, Bansal A, Srivastava A, Zhou Y, Finkel D, Green A, Mallappallil M, Faugno AJ, Zhang J, Velez JCQ, Shaefi S, Parikh CR, Charytan DM, Athavale AM, Friedman AN, Redfern RE, Short SAP, Correa S, Pokharel KK, Admon AJ, Donnelly JP, Gershengorn HB, Douin DJ, Semler MW, Hernán MA, Leaf DE; STOP-COVID Investigators. Association Between Early Treatment With Tocilizumab and Mortality Among Critically Ill Patients With COVID-19. JAMA Intern Med. 2020 Oct 20. doi: 10.1001/jamainternmed.2020.6252. Epub ahead of print. PMID: 33080002. Link: <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2772185>

JAMA Intern Med: Hermine O, Mariette X, Tharaux PL, Resche-Rigon M, Porcher R, Ravaud P; CORIMUNO-19 Collaborative Group. Effect of Tocilizumab vs Usual Care in Adults Hospitalized With COVID-19 and Moderate or Severe Pneumonia: A Randomized Clinical Trial. JAMA Intern Med. 2020 Oct 20. doi: 10.1001/jamainternmed.2020.6820. Epub ahead of print. PMID: 33080017. Link: <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2772187>

JAMA Intern Med: Salvarani C, Dolci G, Massari M, Merlo DF, Cavuto S, Savoldi L, Bruzzi P, Boni F, Braglia L, Turrà C, Ballerini PF, Sciascia R, Zammarchi L, Para O, Scotton PG, Inojosa WO, Ravagnani V, Salerno ND, Sainaghi PP, Brignone A, Codeluppi M, Teopompi E, Milesi M, Bertomoro P, Claudio N, Salio M, Falcone M, Cenderello G, Donghi L, Del Bono V, Colombelli PL, Angheben A, Passaro A, Secondo G, Pascale R, Piazza I, Facciolongo N, Costantini M; RCT-TCZ-COVID-19 Study Group. Effect of Tocilizumab vs Standard Care on Clinical Worsening in Patients Hospitalized With COVID-19 Pneumonia: A Randomized Clinical Trial. JAMA Intern Med. 2020 Oct 20. doi: 10.1001/jamainternmed.2020.6615. Epub ahead of print. PMID: 33080005. Link: <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2772186>

JAMA Netw Open: Kreps S, Prasad S, Brownstein JS, Hsuen Y, Garibaldi BT, Zhang B, Kriner DL. Factors Associated With US Adults' Likelihood of Accepting COVID-19 Vaccination. JAMA Netw Open. 2020 Oct 1;3(10):e2025594. doi: 10.1001/jamanetworkopen.2020.25594. PMID: 33079199. Link: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2771872>

JAMA Psychiatry: Carlo AD, Barnett BS, Unützer J. Harnessing Collaborative Care to Meet Mental Health Demands in the Era of COVID-19. JAMA Psychiatry. 2020 Oct 21. doi: 10.1001/jamapsychiatry.2020.3216. Epub ahead of print. PMID: 33084852. Link: <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2771405>

Lancet Infect Dis: Li Y, Campbell H, Kulkarni D, et al. The temporal association of introducing and lifting non-pharmaceutical interventions with the time-varying reproduction number (R) of SARS-CoV-2: a modelling study across 131 countries. Lancet Infect Dis. Published: October 22, 2020 DOI: [https://doi.org/10.1016/S1473-3099\(20\)30785-4](https://doi.org/10.1016/S1473-3099(20)30785-4) Link: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30785-4/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30785-4/fulltext)

Lancet Infect Dis: Xia S, Zhang Y, Wang Y, Wang H, Yang Y, Gao GF, Tan W, Wu G, Xu M, Lou Z, Huang W, Xu W, Huang B, Wang H, Wang W, Zhang W, Li N, Xie Z, Ding L, You W, Zhao Y, Yang X, Liu Y, Wang Q, Huang L, Yang Y, Xu G, Luo B, Wang W, Liu P, Guo W, Yang X. Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBIBP-CorV: a randomised, double-blind, placebo-controlled, phase 1/2 trial. Lancet Infect Dis. 2020 Oct 15:S1473-3099(20)30831-8. doi: 10.1016/S1473-3099(20)30831-8. Epub ahead of print. PMID: 33069281; PMCID: PMC7561304. Link: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30831-8/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30831-8/fulltext)

MMWR: Cates J, Lucero-Obusan C, Dahl RM, et al. Risk for In-Hospital Complications Associated with COVID-19 and Influenza — Veterans Health Administration, United States, October 1, 2018–May 31, 2020. MMWR Morb Mortal Wkly Rep. ePub: 20 October 2020. DOI: <http://dx.doi.org/10.15585/mmwr.mm6942e3> Link: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6942e3.htm>

MMWR: Dasgupta S, Bowen VB, Leidner A, et al. Association Between Social Vulnerability and a County's Risk for Becoming a COVID-19 Hotspot — United States, June 1–July 25, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1535–1541. DOI: <http://dx.doi.org/10.15585/mmwr.mm6942a3> Link: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6942a3.htm>

MMWR: Gold JA, Rossen LM, Ahmad FB, et al. Race, Ethnicity, and Age Trends in Persons Who Died from COVID-19 — United States, May–August 2020. MMWR Morb Mortal Wkly Rep. ePub: 16 October 2020. DOI: <http://dx.doi.org/10.15585/mmwr.mm6942e1> Link: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6942e1.htm>

MMWR: Pringle JC, Leikauskas J, Ransom-Kelley S, et al. COVID-19 in a Correctional Facility Employee Following Multiple Brief Exposures to Persons with COVID-19 — Vermont, July–August 2020. MMWR Morb Mortal Wkly Rep. ePub: 21 October 2020. DOI:

<http://dx.doi.org/10.15585/mmwr.mm6943e1> Link:

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6943e1.htm>

MMWR: Rossen LM, Branum AM, Ahmad FB, Sutton P, Anderson RN. Excess Deaths Associated with COVID-19, by Age and Race and Ethnicity — United States, January 26–October 3, 2020.

MMWR Morb Mortal Wkly Rep. ePub: 20 October 2020. DOI:

<http://dx.doi.org/10.15585/mmwr.mm6942e2> Link:

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6942e2.htm>

Nat Med: Lazarus JV, Ratzan SC, Palayew A, Gostin LO, Larson HJ, Rabin K, Kimball S, El-Mohandes A. A global survey of potential acceptance of a COVID-19 vaccine. Nat Med. 2020 Oct 20;1–4. doi: 10.1038/s41591-020-1124-9. Epub ahead of print. PMID: 33082575; PMCID:

PMC7573523. Link: <https://www.nature.com/articles/s41591-020-1124-9>

NEJM: Stone JH, Frigault MJ, Serling-Boyd NJ, et al; BACC Bay Tocilizumab Trial Investigators. Efficacy of Tocilizumab in Patients Hospitalized with Covid-19. N Engl J Med. 2020 Oct 21. doi: 10.1056/NEJMoa2028836. Epub ahead of print. PMID: 33085857. Link:

<https://www.nejm.org/doi/full/10.1056/NEJMoa2028836>

PLoS One: Coroiu A, Moran C, Campbell T, Geller AC. Barriers and facilitators of adherence to social distancing recommendations during COVID-19 among a large international sample of adults. PLoS One. 2020 Oct 7;15(10):e0239795. doi: 10.1371/journal.pone.0239795. PMID: 33027281; PMCID: PMC7540845. Link:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0239795>

PLoS One: Johnson SU, Ebrahimi OV, Hoffart A. PTSD symptoms among health workers and public service providers during the COVID-19 outbreak. PLoS One. 2020 Oct 21;15(10):e0241032. doi: 10.1371/journal.pone.0241032. PMID: 33085716. Link:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0241032>

PNAS: Galasso V, Pons V, Profeta P, Becher M, Brouard S, Foucault M. Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries. Proc Natl Acad Sci U S A. 2020 Oct 15;202012520. doi: 10.1073/pnas.2012520117. Epub ahead of print. PMID: 33060298.

Link: <https://www.pnas.org/content/early/2020/10/14/2012520117>

Selected Literature: Preprints

medRxiv: Epperly DE, Rinehart KR, Caney DN. COVID-19 Aerosolized Viral Loads, Environment, Ventilation, Masks, Exposure Time, Severity, And Immune Response: A Pragmatic Guide Of Estimates (posted 16 October 2020). medRxiv 2020.10.03.20206110; doi:

<https://doi.org/10.1101/2020.10.03.20206110> Link:

<https://www.medrxiv.org/content/10.1101/2020.10.03.20206110v3>

medRxiv: Raman B, Cassar MP, Tunnicliffe EM, et al. Medium-term effects of SARS-CoV-2 infection on multiple vital organs, exercise capacity, cognition, quality of life and mental health, post-hospital discharge (posted 18 October 2020). medRxiv 2020.10.15.20205054; doi: <https://doi.org/10.1101/2020.10.15.20205054> Link: <https://www.medrxiv.org/content/10.1101/2020.10.15.20205054v1>

medRxiv: Fisher CB, Tao X, Yip T. The Effects of Coronavirus Victimization Distress and Coronavirus Racial Bias on Mental Health Among Black, Indigenous and Latinx Young Adults in the United States (posted 21 October 2020). medRxiv 2020.08.19.20178343; doi: <https://doi.org/10.1101/2020.08.19.20178343> Link: <https://www.medrxiv.org/content/10.1101/2020.08.19.20178343v2>

News in Brief

ABC: ABC News. Erin Schumaker and Mark Nichols. The last COVID-free counties in America (16 October 2020). Link: <https://abcnews.go.com/Health/covid-free-counties-america/story?id=73443542>

Atlantic: The Atlantic. Brendan Borrell. The Tree That Could Help Stop the Pandemic (21 October 2020). Link: <https://www.theatlantic.com/science/archive/2020/10/single-tree-species-may-hold-key-coronavirus-vaccine/616792/>

BuzzFeed: BuzzFeed News. Tasneem Nashrulla. A Woman In Her Thirties Died Of COVID-19 On A Plane (19 October 2020; updated 20 October 2020). Link: <https://www.buzzfeednews.com/article/tasneemnashrulla/texas-woman-died-of-covid-19-on-a-plane>

CDC: Centers for Disease Control and Prevention. Outbreak of Salmonella Enteritidis Infections Linked to Peaches (16 October 2020). Link: <https://www.cdc.gov/salmonella/enteritidis-08-20/index.html>

CIDRAP: Center for Infectious Disease Research and Policy. Experts: Don't count on mild flu season amid COVID-19 (20 October 2020). Link: <https://www.cidrap.umn.edu/news-perspective/2020/10/experts-dont-count-mild-flu-season-amid-covid-19>

CNBC: CNBC. Christina Farr. UK taps Open Orphan to explore vaccine trials that infect volunteers with coronavirus (20 October 2020). Link: <https://www.cnbc.com/2020/10/20/uk-strikes-deal-with-open-orphan-for-coronavirus-challenge-study.html>

CNN: CNN. Alaa Elassar. This 14-year-old girl won a \$25K prize for a discovery that could lead to a cure for Covid-19 (19 October 2020). Link: <https://www.cnn.com/2020/10/18/us/anika-chebrolu-covid-treatment-award-scn-trnd/index.html>

CNN: CNN Business. Chris Isidore. OxyContin maker to plead guilty to federal criminal charges, pay \$8 billion, and will close the company (21 October 2020). Link:

<https://www.cnn.com/2020/10/21/business/purdue-pharma-guilty-plea/index.html>

CNN: CNN Health. Katie Hunt and Kristen Rogers. Possible new organ in the human throat discovered by Dutch scientists (21 October 2020). Link:

<https://www.cnn.com/2020/10/21/health/new-organ-throat-scn-wellness/index.html>

FDA: US Food & Drug Administration. FDA Approves First Treatment for COVID-19 (22 October 2020). Link: <https://www.fda.gov/news-events/press-announcements/fda-approves-first-treatment-covid-19>

FT: Financial Times. Covid-19: the global crisis – in data (18 October 2020). Link:

<https://ig.ft.com/coronavirus-global-data/>

HPN: Homeland Preparedness News. Chris Galford. Health officials request \$8.4B in funding for COVID-19 vaccine distribution, administration (20 October 2020). Link:

<https://homelandprepnews.com/stories/56613-health-officials-request-8-4b-in-funding-for-covid-19-vaccine-distribution-administration/>

Nature: Nature. Christie Aschwanden. The false promise of herd immunity for COVID-19 (21 October 2020). Link: <https://www.nature.com/articles/d41586-020-02948-4>

Nature: Nature. Heidi Ledford. How obesity could create problems for a COVID vaccine (20 October 2020). Link: <https://www.nature.com/articles/d41586-020-02946-6>

Nature: Nature. Kanta Subbarao. COVID-19 vaccines: time to talk about the uncertainties (20 October 2020). Link: <https://www.nature.com/articles/d41586-020-02944-8>

NBC: NBC News. Sara G. Miller. Volunteer in AstraZeneca Covid-19 vaccine trial dies in Brazil (21 October 2020; updated 22 October 2020). Link: <https://www.nbcnews.com/health/health-news/volunteer-astrazeneca-covid-19-vaccine-trial-dies-brazil-n1244166>

NPR: National Public Radio. Geogg Brumfiel. Studies Point To Big Drop In COVID-19 Death Rates (20 October 2020). Link: <https://www.npr.org/sections/health-shots/2020/10/20/925441975/studies-point-to-big-drop-in-covid-19-death-rates>

NPR: National Public Radio. Michaelleen Doucleff. Do Masks On Plane Flights Really Cut Your Risk Of Catching COVID-19? (20 October 2020). Link: <https://www.npr.org/sections/goatsandsoda/2020/10/20/925892185/do-masks-really-cut-your-risk-of-catching-covid-19-on-long-plane-flights>

NPR: National Public Radio. Jon Hamilton. Water Or A Sports Drink? These Brain Cells May Decide Which One We Crave (14 October 2020). Link: <https://www.npr.org/sections/health-shots/2020/10/14/923658129/water-or-a-sports-drink-these-brain-cells-may-decide-which-one-we-crave>

NPR: National Public Radio. Richard Harris. How Will The Limited Supply Of Antibody Drugs For COVID-19 Be Allocated? (21 October 2020). Link: <https://www.npr.org/sections/health-shots/2020/10/21/926376342/how-will-the-limited-supply-of-antibody-drugs-for-covid-19-be-allocated>

NYT: New York Times. Pauline W. Chen MD. Where Have All the Hospital Patients Gone? (20 October 2020; updated 21 October 2020). Link: <https://www.nytimes.com/2020/10/20/well/where-have-all-the-hospital-patients-gone.html>

PBS NH: PBS NewsHour. 'Darkest part of the pandemic' is approaching, says public health expert (19 October 2020). Link: <https://www.pbs.org/newshour/show/darkest-part-of-the-pandemic-is-approaching-says-public-health-expert>

Reuters: Reuters. AstraZeneca vaccine trial would have stopped if deceased volunteer part of active arm – source (21 October 2020). Link: <https://www.reuters.com/article/health-coronavirus-brazil-vaccine-astraz/astrazeneca-vaccine-trial-would-have-stopped-if-deceased-volunteer-part-of-active-arm-source-idUSL8N2HC71W>

Science: Lipsitch M, Dean NE. Understanding COVID-19 vaccine efficacy. Science. 2020 Oct 21:eabe5938. doi: 10.1126/science.abe5938. Epub ahead of print. PMID: 33087460. Link: <https://science.sciencemag.org/content/early/2020/10/21/science.abe5938>

WaPo: Washington Post. Lauri McGinley and Carolyn Y. Johnson. FDA advisers meet to debate agency guidelines for approving a coronavirus vaccine (22 October 2020). Link: <https://www.washingtonpost.com/health/2020/10/22/covid-vaccine-safety-effectiveness-guidelines/>

WaPo: Washington Post. Shannon McMahon. Southwest will start filling middle seats on flights beginning Dec. 1 (22 October 2020). Link: <https://www.washingtonpost.com/travel/2020/10/22/southwest-airlines-middle-seat-covid/>

WaPo: Washington Post. Carolyn Y. Johnson. Moderna's coronavirus vaccine trial is fully enrolled, 37 percent of participants are minorities (22 October 2020). Link: <https://www.washingtonpost.com/health/2020/10/22/vaccine-trial-moderna/>

WHO: World Health Organization. Statement of the Twenty-Sixth Polio IHR Emergency Committee (22 October 2020). Link: <https://www.who.int/news/item/22-10-2020-statement-of-the-twenty-sixth-polio-ihr-emergency-committee>